

CLAIMS

What is claimed is:

1. A method for manufacturing an organic electroluminescent display,
comprising the steps of:
forming a substantially transparent substrate;
forming a plurality of first display electrodes arranged in parallel on said
substrate;
forming a non-photosensitive insulating layer on said substrate with first
display electrodes disposed thereon;
forming a photosensitive insulating layer on said non-photosensitive insulating
layer;
performing a photolithography process on said photosensitive insulating layer;
developing said photosensitive insulating layer and etching said non-
photosensitive insulating layer so as to form a plurality of photosensitive insulating
layer and the non-photosensitive insulating layer having a shape with its longitudinal
axis substantially perpendicular to the that of the first display electrodes, and the first
display electrodes being exposed partly;
forming an organic electroluminescent material on the exposed first display
electrodes; and
forming a plurality of second display electrodes on the organic
electroluminescent material.
2. The method according to claim 1, wherein the non-photosensitive insulating
layer is made of a thermal type polyimide.

1 3. The method according to claim 1, wherein the thickness of the non-
2 photosensitive insulating layer is in a range of 0.5-2 μ m.

1 4. The method according to claim 1, wherein the step of forming the non-
2 photosensitive insulating layer further comprises a -baking process for providing
3 partial cross-linking to the non-photosensitive insulating layer.

1 5. The method according to claim 4, wherein the temperature for -baking said
2 non-photosensitive insulating layer is in a range of 120-180 C.

1 6. The method according to claim 4, wherein the duration time for -baking said
2 non-photosensitive insulating layer is in a range of 20-60 minutes.

1 7. The method according to claim 1, wherein the thickness of the photosensitive
2 insulating layer is in a range of 3-5 μ m.

1 8. The method according to claim 1, wherein the exposure to the photosensitive
2 insulating layer during the photolithography process is in a range 30-80mJ/cm².

1 9. The method according to claim 1, wherein the step of developing the
2 photosensitive insulating layer and etching the non-photosensitive insulating layer is
3 proceeded through developers.

1 10. The method according to claim 9, wherein the developer is TMAH 2.38%.

1 11. The method according to claim 9, wherein the duration time for developing
2 is in a range of 50-100 seconds.

1 12. The method according to claim 1, wherein the photosensitive insulating
2 layer is developed into a trapezoid shape.

1 13. The method according to claim 12, wherein long side of the trapezoid shape
2 of the photosensitive insulating layer is not shorter than that of the reversed
3 trapezoid shape of the non-photosensitive insulating layer.

1 14. The method according to claim 1, wherein the non-photosensitive insulating
2 layer is etching into a reversed trapezoid shape.

1 15. The method according to claim 14, wherein long side of the trapezoid shape
2 of the photosensitive insulating layer is not shorter than that of the reversed
3 trapezoid shape of the non-photosensitive insulating layer.

1 16. The method according to claim 1, wherein the step of developing the
2 photosensitive insulating layer and etching the non-photosensitive insulating layer
3 further comprises a final cure process.

1 17. The method according to claim 16, wherein the temperature for proceeding
2 the final cure process is in a range of 200-350 C.

1 18. The method according to claim 16, wherein the duration time for
2 proceeding the final cure process is in a range of 30-120 minutes.

1 19. A method for manufacturing an organic electroluminescent display,
2 comprising the steps of:
3 forming a substantially transparent substrate;
4 forming a plurality of first display electrodes arranged in parallel on said
5 substrate;
6 forming a non-photosensitive insulating layer on said substrate with first
7 display electrodes disposed thereon;
8 pre-baking and -baking said non-photosensitive insulating layer;

9 forming a photosensitive insulating layer on said non-photosensitive insulating
 10 layer, and pre-baking thereto;
 11 performing a photolithography process on said photosensitive insulating layer
 12 so as to define a shape having a longitudinal axis perpendicular to the that of the first
 13 display electrodes, and performing a post-exposure baking process thereto;
 14 dipping an aggregate composed of said substrate with said first display
 15 electrodes, said non-photosensitive insulating layer and said photosensitive insulating
 16 layer disposed thereon into developers, whereby said photosensitive insulating layer is
 17 partially removed through development and said non-photosensitive insulating layer is
 18 partially removed by etching, and thereby said first display electrodes are exposed
 19 partially;
 20 finally curing said aggregate;
 21 forming an organic electroluminescent material on the exposed first display
 22 electrodes; and
 23 forming a plurality of second display electrodes on the organic
 24 electroluminescent material.

1 20. The method according to claim 19, wherein the non-photosensitive
 2 insulating layer is made of a thermal type polyimide.

1 21. The method according to claim 19, wherein the temperature for pre-baking
 2 said non-photosensitive insulating layer is in a range of 50-120 C.

1 22. The method according to claim 19, wherein the temperature for post-
 2 exposure baking said photosensitive insulating layer is in a range of 90-150 C.

1 23. The method according to claim 19, wherein the duration time for post-
 2 exposure baking said photosensitive insulating layer is in a range of 30-120 seconds.

1 24. The method according to claim 19, wherein the photosensitive insulating
2 layer is developed into a trapezoid shape.

1 25. The method according to claim 24, wherein long side of the trapezoid shape
2 of the photosensitive insulating layer is not shorter than that of the reversed
3 trapezoid shape of the non-photosensitive insulating layer.

1 26. The method according to claim 19, wherein the non-photosensitive
2 insulating layer is etched into a reversed trapezoid shape.

1 27. The method according to claim 26, wherein long side of the trapezoid shape
2 of the photosensitive insulating layer is not shorter than that of the reversed
3 trapezoid shape of the non-photosensitive insulating layer.

1 28. A method for manufacturing an organic electroluminescent display,
2 comprising the steps of:

3 forming a substantially transparent substrate;

4 forming a plurality of first display electrodes arranged in parallel on said
5 substrate;

6 forming a first photosensitive insulating layer on said substrate with first
7 display electrodes disposed thereon;

8 forming a second photosensitive insulating layer on said first photosensitive
9 insulating layer;

10 performing a photolithography process on said first and second photosensitive
11 insulating layers;

12 developing said first and second photosensitive insulating layers
13 simultaneously so as to form a plurality of first and second photosensitive insulating
14 layers having a shape with its longitudinal axis substantially perpendicular to the

15 that of the first display electrodes, and the first display electrodes being exposed
16 partly;
17 forming an organic electroluminescent material on the exposed first display
18 electrodes; and
19 forming a plurality of second display electrodes on the organic
20 electroluminescent material,
21 wherein the photosensitivity of the first photosensitive insulating layer is
22 different from that of the second photosensitive insulating layer.

1 29. The method according to claim 28, wherein the step of developing said first
2 and second photosensitive insulating layers is proceeded through developers.

1 30. The method according to claim 28, wherein the photosensitivity of said first
2 photosensitive insulating layer is greater than that of said second photosensitive
3 insulating layer.

1 31. A method for manufacturing an organic electroluminescent display,
2 comprising the steps of:
3 forming a substantially transparent substrate;
4 forming a plurality of first display electrodes arranged in parallel on said
5 substrate;
6 forming a first photosensitive insulating layer on said substrate with first
7 display electrodes disposed thereon;
8 forming a second photosensitive insulating layer on said first photosensitive
9 insulating layer;
10 performing a photolithography process on said first and second photosensitive
11 insulating layers so as to define a shape having a longitudinal axis perpendicular to
12 that of the first display electrodes;
13 dipping an aggregate composed of said substrate with said first display
14 electrodes, said first photosensitive insulating layer and said second photosensitive

15 insulating layer disposed thereon into developers, whereby said first and second
16 photosensitive insulating layers are partially removed through development, and thereby
17 said first display electrodes are exposed partially;
18 forming an organic electroluminescent material on the exposed first display
19 electrodes; and
20 forming a plurality of second display electrodes on the organic
21 electroluminescent material.

1 32. The method according to claim 31, wherein the photosensitivity of said first
2 photosensitive insulating layer is greater than that of said second photosensitive
3 insulating layer.